

**PATENT**  
Attorney Docket No. 502469  
Client Reference No. 03045

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Atul Kelkar

Art Unit: 2123

Application No.: 10/731,742

Examiner: Juan Carlos Ochoa

Filed: December 9, 2003

For: Method and System for Performing  
Energy-Extraction Based Active  
Noise Control

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

DECLARATION UNDER RULE 37 CFR 1.131

I, Atul G. Kelkar, declare the following is true:

1. I am a citizen of the United States of America, residing at 3240 Honeysuckle Rd, Ames, Iowa 50014, and am employed by Iowa State University, an assignee of the United States Patent Application Serial Number 10/731,742 (the '742 Application), as a Professor in the Department of Mechanical Engineering. I received a Ph.D. in Mechanical Engineering in 1993 and have been doing research in noise and vibration control for over ten years.

2. I am an inventor of the subject matter described and claimed in the '742 Application filed on December 9, 2003.

3. I have been advised that the '742 Application has been rejected in an Office Action dated January 11, 2007 under 35 U.S.C. § 103(a) based on a publication by Kelkar and Joshi entitled "Robust Passification and Control of Non-Passive Systems" (Kelkar paper hereinafter) taken in view of a publication by Son et al. entitled "Stabilization of Linear Systems Via Low-Order Dynamic Output Feedback: A Passification Approach" (Son paper hereinafter)

4. I have been further advised that the Office Action states that the Kelkar paper discloses a method to design a feedback controller for extracting acoustic energy and structural energy in an acoustic enclosure comprising the steps of obtaining a continuous-time multi-input multi-output state-space mathematical model of the acoustic enclosure and checking passivity of the compensated system.

5. I am an author of the Kelkar paper and the paper entitled "Robust Passification Via Optimal Sensor Blending And Control Allocation" (Kelkar2 paper hereinafter).

6. I make this declaration to state that none of those papers teach extraction of acoustic and structural energy in an acoustic enclosure. The Kelkar and Kelkar2 papers describe theoretical foundations for the concept of passivity and robustness of passivity. The papers do not address the unique problem observed in acoustic enclosures in which a solution is described in the '742 Application.

7. I further declare that all statements made in this declaration of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or

both, under §1001 of Title 18 of United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

A handwritten signature in black ink, appearing to read 'Atul Kelkar', with a horizontal line underneath it.

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Atul Kelkar

June 5, 2007.

Date